

## Claims

What is claimed is:

- 5           1.       A medication delivery system capable of communicating and matching  
prescribed medication data from a first label on a medication container holding the medication  
and patient data from a second label on a tag adapted to be worn by a patient wherein the first  
label also containing instruction of delivering the medication, and the medication and patient  
data being provided in machine readable formats, the medication delivery system comprising:
  - 10           (a)     a medical device in communication with the medication container, the medical  
device adapted to delivering the medication from the container to the patient, the medical device  
having a data port for receiving information; and
  - (b)     a handheld computing device having means for reading the prescribed  
medication data and the patient data and comparing the data to confirm a match between the  
15           medication data and patient data, the handheld computing device having a transmitter capable of  
transmitting the medication delivery instruction from the handheld computing device to the  
medical device wherein the medical device is adapted to deliver the medication to the patient  
according to the instructions.
2.       The medication delivery system of Claim 1 wherein the handheld computing  
20           device is a personal digital assistant.
3.       The medication delivery system of Claim 1 wherein the machine readable data of  
the prescribed medication and the instruction of delivering the prescribed medication are coded  
in a format selected from the group consisting of: linear bar codes, two-dimensional bar codes,  
printed data encoding technology, radio frequency identification technology, magnetic stripes or  
25           tapes, optical character recognition technology, and optical holograms.
4.       The medication delivery system of Claim 1 wherein the machine readable  
prescribed medication data and medication delivery instruction are coded in two-dimensional  
bar codes.
5.       The medication delivery system of Claim 1 wherein the machine readable patient  
30           data is coded in a format selected from the group consisting of: linear bar codes, two-  
dimensional bar codes, printed data encoding technology, radio frequency identification

technology, magnetic stripes or tapes, optical character recognition technology, and optical holograms.

6. The medication delivery system of Claim 1 wherein the machine readable patient data is coded in two-dimensional bar codes.

5 7. The medication delivery system of Claim 1 wherein the first label of medication data is a two-dimensional bar code integrated with text.

8. The medication delivery system of Claim 1 wherein the second label of patient data is a two-dimensional bar code integrated with text.

9. The medication delivery system of Claim 1 wherein the first label of medication data is a radio frequency identification programming integrated with text.

10 10. The medication delivery system of Claim 1 wherein the second label of patient data is a radio frequency identification programming integrated with text.

11. The medication delivery system of Claim 1 wherein the means for reading the prescribed medication data, the medication delivery instruction, and patient data is selected from the group consisting of: bar code scanners, radio frequency identification readers, magnetic stripe or tape readers, and optical readers.

12. The medication delivery system of Claim 1 wherein the means of reading the prescribed medication data, the medical delivery instruction, and the patient data of the handheld computing device is a two-dimensional bar code scanner.

13. The medication delivery system of Claim 1 wherein the transmitter of the handheld computing device is an infrared transceiver.

14. The medication delivery system of Claim 1 wherein the medical device is an electronic infusion pump.

15. The medication delivery system of Claim 1 wherein the medication delivery device further has an adapter to facilitate the communication between the handheld computing device and the medication delivery device.

16. A medication delivery system comprising:

(a) a container holding a medication, the container having a first bar code label in machine readable format containing medication data and a predetermined set of pump

instructions for delivering the medication;

(b) a tag adapted to be worn by a patient, the tag having a second bar code label in machine readable format containing patient data;

(c) an infusion pump in communication with the medication container, the pump adapted to deliver the medication from the container to the patient via a catheter, the infusion pump having at least one delivery channel, and the pump having a data port for receiving information; and

5 (d) a personal digital assistant having a bar code scanner thereon and a data transmitter thereon, the personal digital assistant configured to scan the first bar code label and the second bar code label and compare data from the scanned labels to confirm a match between the medication data and patient data, the personal digital assistant transmitter capable of transmitting the predetermined set of pumping instructions from the personal digital assistant to the infusion pump wherein the pump is adapted to deliver the medication to the patient according to the instructions.

10 17. The medication delivery system of Claim 16 wherein in the container is an IV bag and the medication is an IV drug.

15 18. The medication delivery system of Claim 16 wherein the tag containing patient data is a bracelet adapted to be worn by the patient.

19. The medication delivery system of Claim 16 wherein the machine readable format of the first bar code is a two-dimensional bar code.

20 20. The medication delivery system of Claim 16 wherein the machine readable format of the second bar code is a two-dimensional bar code.

21. The medication delivery system of Claim 16 wherein the first label of medication data is a two-dimensional bar code integrated with text.

22. The medication delivery system of Claim 16 wherein the second label of patient data is a two-dimensional bar code integrated with text.

25 23. The medication delivery system of Claim 16 wherein the bar code scanner of the personal digital assistant is a two-dimensional bar code scanner.

24. The medication delivery system of Claim 16 wherein the data transmitter on the personal digital assistant is an infrared transceiver and the data port on the pump for receiving information is an infrared transceiver.

30 25. The medication delivery system of Claim 16 wherein the infusion pump further having an adapter to facilitate the communication between the personal digital assistant and the infusion pump.

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26. The medication delivery system of Claim 25 wherein the adapter of the infusion pump further providing infrared data communication between the infusion pump and the personal digital assistant.

27. The medication delivery system of Claim 16 wherein the delivery channel of the infusion pump has a third label containing channel data identifying the channel, the channel data being in a machine readable format to be scanned by the bar code scanner of the personal digital assistant.

28. The medication delivery system of Claim 16 wherein a pharmacy information system generates a print stream containing the medication data and the predetermined set of pump instructions for delivering the medication, and wherein the first bar code label is encoded with the data and instruction derived from the print stream.

29. A medication delivery system comprising:

(a) a medication container containing a prescribed medication and a first label containing data on the prescribed medication, and instruction of delivering the prescribed medication, the medication data and medication delivery instruction being provided in machine readable format;

(b) a tag adapted to be worn by a patient, the tag having a second label containing data on the patient, the patient data being provided in machine readable format;

(c) a handheld computing device with:

means for reading the prescribed medication data, the medication delivery instruction, and the patient data;

means for storing the data; and

means for communicating with other electronic devices; and

(d) an electronic medication delivery device having the means for communicating with the handheld computing device to receive the medication delivery instruction from the handheld device to deliver the prescribed medication in the medication container to the patient via a catheter, the medication delivery device having at least one delivery channel;

wherein the handheld computing device reads and stores the prescribed medication data and the patient data, performs a matching check between the prescribed medication data and the patient data to confirm a match, and communicates the medication delivery instruction to the electronic medication delivery device to deliver the medication to the patient.

30. The medication delivery system of Claim 29 wherein the medication container is an IV bag, the prescribed medication is an IV drug.

31. The medication delivery system of Claim 29 wherein the medication delivery device is an infusion pump.

5 32. The medication delivery system of Claim 29 wherein the tag containing patient data is a bracelet adapted to be worn by the patient.

33. The medication delivery system of Claim 29 wherein the machine readable data of the prescribed medication and the instruction of delivering the prescribed medication are coded in a format selected from the group consisting of: linear bar codes, two-dimensional bar codes, printed data encoding technology, radio frequency identification technology, magnetic stripes or tapes, optical character recognition technology, and optical holograms.

34. The medication delivery system of Claim 29 wherein the machine readable prescribed medication data and medication delivery instruction are coded in two-dimensional bar codes.

15 35. The medication delivery system of Claim 29 wherein the machine readable patient data is coded in a format selected from the group consisting of: linear bar codes, two-dimensional bar codes, printed data encoding technology, radio frequency identification technology, magnetic stripes or tapes, optical character recognition technology, and optical holograms.

20 36. The medication delivery system of Claim 29 wherein the machine readable patient data is coded in two-dimensional bar codes.

37. The medication delivery system of Claim 29 wherein the first label and the second label are generated by a software interface application that utilizes the print data stream from a pharmacy information system.

25 38. The medication delivery system of Claim 29 wherein the means of reading the prescribed medication data, the medication delivery instruction, and the patient data of the handheld computing device is selected from the group consisting of: bar code scanners, radio frequency identification readers, magnetic stripe or tape readers, and optical readers.

30 39. The medication delivery system of Claim 29 wherein the means of reading the prescribed medication data, the medical delivery instruction, and the patient data of the handheld computing device is a two-dimensional bar code scanner.

40. The medication delivery system of Claim 29 wherein the first label containing medication data is a two-dimensional bar code with integrated text.

41. The medication delivery system of Claim 29 wherein the second label containing patient data is a two-dimensional bar code with integrated text.

5 42. The medication delivery system of Claim 29 wherein the first label containing medication data is a radio frequency identification programming with integrated text.

43. The medication delivery system of Claim 29 wherein the second label containing patient data is a radio frequency identification with integrated text.

44. The medication delivery system of Claim 29 wherein the means for communicating with other electronic devices is by infrared transmission.

45. The medication delivery system of Claim 29 wherein the handheld computing device is a personal digital assistant.

46. The medication delivery system of Claim 29 wherein the medication delivery device further comprising an adapter to facilitate the communication between the handheld computing device and the medication delivery device.

47. The medication delivery system of Claim 46 wherein the adapter of the medication delivery device further providing infrared data communication between the medication delivery device and the handheld computing device.

48. The medication delivery system of Claim 29 wherein the medication delivery device has multiple channels, each channel having a third label containing channel data identifying the channel, the channel data being in a machine readable format to be transmitted to the handheld computing device.

49. The medication delivery system of Claim 29 wherein the catheter having a fourth label containing catheter data identifying the catheter, the catheter data being in a machine readable format to be transmitted to the handheld computing device.

50. A medication delivery system capable of communicating and matching prescribed medication data from a first label on a medication container holding the medication and patient data from a second label on a tag adapted to be worn by a patient wherein the first label also containing instruction of delivering the medication, and the data and instruction being provided in machine readable formats, the medication delivery system comprising:

(a) a handheld computing device with:

means for reading the prescribed medication data, medication delivery instruction, and patient data;

means for storing the data; and

means for communicating with other electronic devices; and

5 (b) an electronic medication delivery device to deliver the medication to the patient;

wherein the handheld computing device reads the prescribed medication data and the patient data, performs a matching check to confirm a match between the prescribed medication data and the patient data, and communicates the instruction of delivering the prescribed medication to the medication delivery device to deliver the medication to the patient.

10 51. The medication delivery system of Claim 50 wherein the handheld computing device is a personal digital assistant.

15 52. The medication delivery system of Claim 50 wherein the means for reading the prescribed medication data, the medication delivery instruction, and patient data is selected from the group consisting of: bar code scanners, radio frequency identification readers, magnetic stripe or tape readers, and optical readers.

20 53. The medication delivery system of Claim 50 wherein the means of reading the prescribed medication data, the medical delivery instruction, and the patient data of the handheld computing device is a two-dimensional bar code scanner.

25 54. The medication delivery system of Claim 50 wherein the means for communicating with other electronic devices is by infrared transmission.

55. The medication delivery system of Claim 50 wherein the medication delivery device is an electronic infusion pump, the electronic infusion pump having at least one delivery channel.

30 56. The medication delivery system of Claim 55 wherein the delivery channel of the electronic infusion pump having a third label containing channel data identifying the channel, the channel data being in a machine readable format to be transmitted to the handheld computing device.

57. The medication delivery system of Claim 50 wherein the medication delivery device further having an adapter to facilitate the communication between the handheld computing device and the medication delivery device.

58. The medication delivery system of Claim 57 wherein the adapter of the medication delivery device further providing infrared data communication between the medication delivery device and the handheld computing device.

59. A method for medication delivery comprising the steps of:

5 (a) providing a medication container containing a prescribed medication and a first label containing data on the prescribed medication and instruction of delivering of the medication, the prescribed medication data and the instruction of delivering the medication being provided in machine readable format;

10 (b) providing a tag adapted to be worn by a patient, the tag having a second label containing data of the patient, the patient data being provided in machine readable format;

(c) providing a handheld computing device with:

means for reading the prescribed medication data and medication delivery

instruction from the first label and patient data from the second label;

means for storing the data and instruction; and

15 means for communicating data and instruction to other electronic devices; and

(d) the handheld computing device reading the prescribed medication data and medication delivery instruction from the first label;

(e) the handheld computing device reading the patient data from the second label;

and

20 (f) the handheld computing device performing a matching check and confirming the match between the prescribed medication data and the patient data.

60. The method of Claim 59 further comprising the step of the handheld computing device communicating and downloading the medication delivery instruction to a medication delivery device to deliver the medication to the patient.

25 61. The method of Claim 60 further comprising the step of the medication delivery device performing periodic checks of the operating parameters of the medication delivery device against the medication delivery instruction downloaded from the handheld computing device to ensure the operating parameters are within the ranges set by the medication delivery instruction after starting the delivery of the medication.



62. The method of claim 60 wherein the first label is encoded with the prescribed medication data and the instruction of delivering the medication derived from a print stream generated from a pharmacy information system.

63. A method for medication delivery comprising the steps of:

(a) providing a medication container containing a prescribed medication and a first label containing data on the prescribed medication and instruction of delivering of the medication, the prescribed medication data and the instruction of delivering the medication being provided in machine readable format;

(b) providing a tag adapted to be worn by a patient, the tag having a second label containing data of the patient, the patient data being provided in machine readable format;

(c) providing a handheld computing device with:

means for reading the prescribed medication data and medication delivery

instruction from the first label and patient data from the second label;

means for storing the data and instruction; and

means for communicating data and instruction to other electronic devices; and

(d) the handheld computing device reading the prescribed medication data and medication delivery instruction from the first label;

(e) the handheld computing device reading the patient data from the second label;

(f) the handheld computing device performing a matching check and confirming the match between the prescribed medication data and the patient data; and

(g) the handheld computing device communicating and downloading the medication delivery instruction to a medication delivery device to deliver the medication to the patient.

64. A method for medication delivery comprising the steps of:

(a) identifying medication data contained in a first label on a medication container containing a prescribed medication, the first label containing data on the prescribed medication and instruction of delivering of the medication, the prescribed medication data and the instruction of delivering the medication being provided in machine readable format;

(b) identifying patient data contained in a second label on a tag adapted to be worn by a patient, the second label containing data of the patient, the patient data being provided in machine readable format;

(c) performing a matching check between the medication data and the patient data by a handheld computing device wherein the handheld computing device having:

means for reading the prescribed medication data and medication delivery  
instruction from the first label and patient data from the second label;  
means for storing the data and instruction; and  
means for communicating data and instruction to other electronic devices;

- 5 (d) the handheld computing device confirming the data and downloading the  
instruction of delivering the medication to a medication delivery device.

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